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**A N N U A L   R E P O R T**

**CALENDAR YEAR 1958**

**Division of Research Grants**

**National Institutes of Health**



Annual Report of Activities  
Division of Research Grants  
Calendar Year 1958

Summary Statement of Extramural Program

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Of the total appropriation of \$294 million afforded to the National Institutes of Health for Fiscal Year 1958, almost 70 percent--\$201 million--was allocated to the extramural program to support research and research training in the nation's universities, hospitals, and medical schools. Exclusive of these funds, an additional \$30 million supported a program to construct and equip health research facilities.

At the beginning of Calendar Year 1958, the Division of Research Grants was the administrative center for the entire program with the additional responsibility of conducting a noncategorical research and training program in the basic medical and biological sciences.

Administrative necessity dictated a reorganization in order to develop properly the noncategorical research and training program while simultaneously fulfilling the expanding needs for central DRG services in all the extramural areas. This resulted in the establishment of the Division of General Medical Sciences, and the transfer of programming responsibilities of noncategorical research and training to the new Division. DRG retained management of the health research facilities construction program, and administrative responsibility--including technical review of all grant applications, fiscal control, and business services--for the entire extramural effort.

The reorganization enabled DRG to increase the number of study sections (to 31) and to make use of additional ad hoc committees in order to sustain the high quality of review of applications. Further, DRG expanded the review of applications on a disciplinary basis, established a central program for providing a continuing statistical analysis and evaluation of the progress and direction of each aspect of the extramural program, strengthened liaison with grantee institutions, and accelerated the handling of applications.

Accomplishments in the extramural effort are recorded in the support provided by Fiscal Year 1958 funds: 7,028 research grants amounting to \$99,480,968 were awarded to individuals in 699 institutions located in 48 States, the District of Columbia, two territories, and 28 foreign countries. A total of 2,329 research fellowships amounting to \$6,430,551 were awarded to individuals in 211 institutions located in 42 States, the District of Columbia, one territory, and 11 foreign countries.

In the health research facilities construction program, DRG awarded, on a matching fund basis, 177 grants totaling \$30,200,095 to help build or expand research facilities at 134 institutions.

Congressional interest in this program is reflected by the fact that in August, 1958, the Congress enacted Public Law 85-777 which extended the program to 1961.

The individual administrative programs within the various DRG components are briefly described in the following report.

#### Research Fellowships Review Branch

With the reorganization of the Division of Research Grants, the Research Fellowships Section became the Research Fellowships Review Branch. As currently constituted, the Branch has responsibility for review of predoctoral, postdoctoral and special research fellowship applications, and for administering on behalf of the various Institutes and Divisions the many details regarding their individual Fellows.

#### Review Techniques

Along with the reorganization of the Branch, the procedures for fellowship application review were changed. The Central Qualifications Board was divided into seven disciplinary panels: Anatomy and Physiology, Behavioral Science, Biochemistry and Nutrition, Clinical Research, General and Physical Biology, Microbiology, and Pharmacology and Endocrinology. These panels meet monthly. Panel members have been selected from Institute intramural personnel, with an additional member chosen from executive secretaries of the study sections in the Research Grants Review Branch.

After review by a disciplinary panel, an application is referred to the appropriate Institute or Division for review by its Specialty Fellowship Board. This dual review is now comparable in many aspects to procedures used in considering research grant proposals.

#### New Stipends and Allowances

During this year both the National Institutes of Health and the National Science Foundation explored needs for higher stipends and allowances. This exploration on the part of both agencies extended over several months. As a result of these surveys, increased stipends and allowances went into effect January 1, 1959.

#### Statistical Analysis and Evaluation of the Extramural Program

During 1958, the Division of Research Grants established for the first time a statistical research program devoted to the quantitative analysis of the NIH extramural program and its impact on nation-wide research and training activities in the medical and biological sciences.

Designed to be flexible, responsive, and extensive in scope, the program will furnish a wealth of new data to help guide medical research planning on the local, national, and international levels.

Centered in the Statistics and Analysis Branch, DRG, the program strengthens the Division's capacity for providing to NIH administrators, other Government agencies, and the Congress necessary information on the status, progress, and direction of every phase of the NIH extramural effort. Serving as an "intelligence center," the Branch provides DRG the framework for conducting continuing statistical analyses of both intra- and extra-NIH data in order to determine changing patterns, trends, needs, accomplishments, and dynamics of extramural research and training programs throughout the nation. From this data, the Division will evaluate and report on the status of grant-supported programs in relation to NIH plans and objectives, and on the impact of grant programs upon substantive research and training problems in this country--including the impact upon the research and training community and its resources.

The Division of Research Grants will also be responsible for determining (and for taking corrective measures in) areas that are weak in data concerning national resources for medical research under the NIH program.

Under the aegis of a newly-appointed chief of Statistics and Analysis Branch, DRG plans more extensive utilization of the facilities of the Bio-Sciences Information Exchange which serves as a clearing-house for information concerning all research grants made by seven Federal agencies and 90-odd private foundations. The Exchange provides quantitative analyses of the NIH extramural program, and special reports of research by field, specialty of the investigator, geographical distribution, etc.

In prospect, the expanded and reinforced statistical analysis and evaluation program will, figuratively speaking, position DRG as the check point "on the pressure and the pulse" of the nation-wide research and research training program administered at NIH.

#### Internal Operations Branch

✓ The Internal Operations Branch was established in July of 1958. A variety of central service and housekeeping functions were placed in this branch under the direction of the Administrative Officer of the Division. These services include:



Office of Branch Chief

Budgeting, personnel planning, space, etc.  
Purchase and supply; inventory controls  
Property accountability  
Coordination of all Division administrative activities

Miscellaneous Services Section

Personnel recruiting  
Time and leave  
Mail and files  
Travel clerks  
Typing pool

Grants Finances Section

Processing payment of all NIH research grants

Duplicating Section

NIH duplicating plant

Effective March 1, 1958, research and training grants of \$5,000 or more were paid in two installments at about six-month intervals. Prior to that date, 90 percent of all grants were paid in full at the time of their activation. The revised procedure for paying grants is expected to provide substantial savings to the government in interest.

Recruitment of new personnel for the Division was somewhat slower than planned: full-time filled positions increased from 216 on January 1, 1958, to 239 on December 31, 1958. Many of the remaining 51 vacancies will not be filled until additional office space becomes available.

The Duplicating Section processed 23,992 requisitions involving 152,437 offset masters and stencils, producing 19,498,370 impressions. In comparison, total impressions during 1957 were 15,925,214, and 11,680,182 in 1956. A plan, developed in Calendar Year 1958, is pending clearance of the Congressional Joint Committee on Printing. It proposes to establish duplicating facilities in the new Robin Building in Silver Spring in order to service the reproduction requests at that location when it opens for NIH use in the spring. This will permit the present DRG plant to continue meeting NIH-proper duplicating demands in 1959 without additional equipment and related space.

During the last six months of calendar year 1958, the breakdown of duplicating requests between extramural and other-than-extramural NIH activities were as follows:

	No. of Req.	%	No. of Plates	%	No. of Impressions	%	Average Copy per Plate
Extramural	10,884	92	68,100	92	7,785,254	78	114
Other than Extramural	904	8	5,833	8	2,188,760	22	375
Totals	11,788	100	73,933	100	9,974,014	100	135

Plans were developed, and necessary purchase orders were initiated, to convert the DRG Mail and File Unit into an open-shelf filing system in preference to four and five-drawer files. The open-shelf system requires less floor space, and will speed up filing activities.

#### Health Research Facilities Branch

The Division continued in its responsibility for the administration and implementation of the health research facilities construction program. Members of the Health Research Facilities Branch reviewed all applications for construction and equipment for such facilities, and--in conjunction with Council members--conducted all necessary project site visits.

#### Legislation

The enactment, on August 27, 1958, of Public Law 85-777 had both positive and negative aspects: it extended the program until June 30, 1962, authorizing \$90 million in expenditures during the additional three years; however, as a simple extension of the original act, no provision was made for constructing urgently needed facilities for training researchers in the health related fields.

Previously, and again in the 1958 Annual Report, members of the Council recommended to the Congress enactment of legislation to authorize a program for construction of training facilities. The Council further recommended that the training facilities and research facilities programs be administered as one, with review and advice by the Council.

#### The Program

The program authorizes expenditures not to exceed \$30 million yearly. During 1958, the Health Research Facilities Branch received 203 completed applications, 29 supplemental requests, and 84 notices of intention to file. Grants were approved for 134 institutions in 39 States, the District of Columbia, and Hawaii, representing expenditure of the \$30 million appropriation for the year.

At year's end, however, 136 completed applications, and seven supplemental requests were still on hand for processing and submission to the Health Research Facilities Advisory Council. These represented an estimated expenditure of \$35,237,886.

### Council Activities

During the year, the Health Research Facilities staff and Council members conducted more than 200 project site visits.

The Council held two instead of three meetings during the year, each lasting three days. The May meeting was postponed to late September in order that project site visits could be made to all institutions that had submitted applications prior to the deadline date of June 30.

### Research Grants Review Branch

At the end of Calendar Year 1958, the Research Grants Review Branch consisted of 31 study sections.

An important administrative development within the Branch was the refinement of the procedure for reviewing the increasing number of applications requesting large sums of money to support long-term, multidisciplinary research projects. In order to accelerate the activation of research in problem areas such as antibiotic-resistant staphylococcal infections, viral etiology of tumors, etc., the Branch initiated a series of interdisciplinary discussions through ad hoc inter-study section advisory panels.

The success of these conferences is reflected in (a) the many research approaches currently utilized, and (b) the increasing number of applications for the conduct of research along the various avenues proposed by the inter-study section conferences.

Significant activities of the study sections during the year follow.

### Bacteriology & Mycology Study Section

As a result of a division of the Microbiology Study Section, the Bacteriology and Mycology Study Section was established and held its first meeting on October 7-8, 1958. The separation (which led to the simultaneous establishment of the Virology and Rickettsiology Study Section) was made principally because the increasing work-load jeopardized the high quality of scientific review. Its timeliness was attested by the fact that 67 research grant applications were reviewed at the first (October 7-8) meeting of the new study section, and 71 research grant applications and two applications for research training grants were appraised at the second meeting held in January 1959.



In recognition of a general need for augmented research efforts in the face of an emerging problem with apparent national significance, an Inter-Study Section Conference on Staphylococcal Infections, sponsored by the Division of Research Grants, was held at Bethesda, Maryland on August 28-29, 1958. At this conference, 24 representatives of 13 study sections discussed and evaluated one another's views on staphylococcal research needs. General and specific recommendations for projects on basic and applied research were formulated and communicated to the Institutes. At the time of this conference, three multidisciplinary research grant applications dealing with staphylococcus problems were reviewed by a Special Study Section (Staph) composed of individuals selected from the group of conferees. This panel is potentially available for service on an ad hoc basis as the need may arise for review of multidisciplinary projects.

Following this conference, the Bacteriology and Mycology Study Section became the focal point for review of research grant applications concerned with varied aspects of staphylococcus problems, and received for review the majority of applications in this area. At its first (October 1958) meeting, the study section reviewed 16 applications relating entirely or partly to staphylococcus infections and/or disease; of these, 13 were recommended for approval.

#### Radiation Study Section

The study section continued its consideration of the possibility of cooperative studies in radiotherapy. The formal report of the conference held at Highland Park, Illinois on May 10-12, 1957, titled "Research in Radiology" was released as National Academy of Science-National Research Council Publication No. 571.

An informal meeting was held in Bethesda on May 17-18, 1958 at which approximately 40 outstanding U.S. radiotherapists were in attendance. It was again agreed that studies of this nature are highly desirable, not only because of the direct need for statistically valid data on the effectiveness of radiotherapy, but also because of the potential beneficial impact on the practice and teaching of this speciality. It was agreed that immediate attention should be paid to the possibility of cooperative studies in carcinoma of the lung and of the cervix, and that studies on disease in other sites would be held in abeyance. Coordinating committees were established to proceed with the organization of cooperative research in these two areas. Additional meetings of the two latter committees were planned in order to complete detailed action on protocols, and to make the necessary administrative arrangements for initiation of the studies.

The study section also sponsored an August 1958 conference in Burlington, Vermont, on "Tissue Oxygen Tension and Radiotherapy." Recent work indicates that radiosensitivity of both normal and tumor tissue is markedly dependent upon the tissue oxygen tension. The purpose of this conference was to explore the basic information available at that time, determine areas needing further study, and evaluate the significance of these findings for clinical radiotherapy. A major portion of the basic studies and clinical work to that date had been conducted in the United Kingdom; therefore, representatives from the major active groups in that country were present at the conference. It was agreed that the information concerning the inter-relationship between tissue oxygen tension and radiosensitivity has potential significance in clinical therapy, but that much additional research on the basic level and in animals is needed before techniques are developed for routine use in humans.

The Executive Secretary continued his active participation in extramural activities on radiation protection, particularly with reference to activities of the Executive Committee and the Subcommittee on Wide-spread Radioactive Contamination of the National Committee on Radiation Protection and Measurements, as well as the Committee on Units, Standards and Protection of the American College of Radiology. In addition, he continued to serve as a voting member of the U.S. Atomic Energy Commission Radiological Physics Fellowship Board.

#### Virology and Rickettsiology Study Section

The ever-increasing workload of applications in the Microbiology Study Section led to a June 1958 reorganization which resulted in the establishment of the Virology and Rickettsiology, and the Bacteriology and Mycology Study Sections, with some applications going to the Genetics and the Biochemistry Study Sections.

During the January and May meetings of the Microbiology Study Section, training grant applications were reviewed for the (then) Training Grants Branch of the Division of Research Grants. With the establishment of the Division of General Medical Sciences, this review became a function of the new Division.

On August 28-29, a full-scale inter-study section meeting was held to explore the broad field of staphylococcal infections in hospitals, and to make concrete recommendations to the National Advisory Council on Allergy and Infectious Diseases. Members of 13 study sections and several ad hoc consultants each gave their opinions as to where knowledge was lacking and what could be done about it. The method was very successful and it is hoped that this type of meeting will result in a stimulation of applications in the field of staphylococcus infections.

As a result of a Congressional recommendation in the last appropriation bill for cancer research, the National Cancer Institute asked the Virology and Rickettsiology Study Section to provide advice to the Institute and its Council for program use in the tumor-virus field. Since the previous round-table discussion session on staphylococcus infections was so successful, the method was again employed in an inter-study section meeting on tumor-viruses held on September 16, 1958. This meeting brought together scientists from all the fields related to viruses and malignancies. Plans were made for a long-range program which will be of invaluable use to the National Advisory Cancer Council in programming future activities.

Although no formal meeting was held by the special Inter-Study Section Committee on Influenza Research, each member was asked to discuss the problem with his study section at its fall meeting, and to report back on items of interest and recommendations for research that may be forthcoming. A preliminary report was submitted to the National Advisory Council on Allergy and Infectious Diseases and the National Advisory Health Council at their November meetings. It is anticipated that an augmented report will be made to the Councils at a later date following discussions to be held in the spring of 1959.

#### Cell Biology Study Section

At the June 1958 meetings, in which 185 applications were presented for review, it became obvious that the work load of the Morphology and Genetics Study Section had become excessive. As a result, the Section was split into a Genetics Study Section, and a Cell Biology Study Section.

The Cell Biology Study Section continued its interest in promoting additional research effort on the study of the cell. This includes various investigations of the cell: its parts and their significance; its differentiation; functional activities; its products and their effects on the producing cell and its neighbors; the organization of cells into tissue; and the near and remote influences on proliferation. In the main, only rudimentary information is available on these problems.

In recognition of the experimental nature of this program, other study sections and the Councils were asked to comment on a plan designed to contribute to the security and research effectiveness of talented cell biologists, and to provide for the inspiration and training of more investigators in this specialty field. Elements of the program included: (a) long-range support of highly qualified investigators in amounts to meet all their needs and to be spent within broad limits at their own discretion, and (b) establishment of a committee advisory to the study section, and exclusively concerned with the Cell Biology Program. The second phase of the proposal--the inspiration and training of more students



of cell biology--was envisaged as primarily dependent upon the establishment of the above recommendations--especially that concerning funding.

The phase was approved by the Cell Biology Study Section at the September 27, 1958 meeting, and the first draft of the proposal submitted to an ad hoc group for consideration.

#### Cardiovascular Study Section

The Cardiovascular Study Section reviewed 245 applications during Calendar Year 1958.

The section considered the possibility of applying electronic computer techniques to physiologic problems. Dr. Otto Schmitt, a section member and chairman of the Joint Executive Committee on Medicine and Biology, was supported through the study section (with Heart Institute funds) in conducting a Conference on Electrical Techniques in Medicine and Biology. The conference was expected to result in a series of applications submitted by collaborators representing the medical and electronic fields. The study section strongly favors encouraging the welding of these disciplines.

#### Genetics Study Section

During Calendar Year 1958, the Genetics Study Section was established in order to handle the increased number of research applications in this field, and to give appropriate recognition to this important area of research.

The first meeting of the study section was held in September, at which time 31 applications were reviewed and study section members were oriented to the NIH programs and apprised of the various Institutes' program interests in genetics.

The workload for the second meeting (scheduled for January 1959) doubled, with a 200 percent increase in new applications.

A major concern of the study section is that of strengthening research and training in medical and human genetics. It is anticipated that specific plans for study section activities toward this end will be crystallized at an early date.

#### Physiology Study Section

Although most of the year was spent in the review and evaluation of research grant applications, a considerable amount of time at the regular meetings was spent discussing other problems in physiology and the biological sciences. As a result of these discussions, the Physiology Study Section presented to the Councils at their November 1958 meeting a resolution recommending support



for longer than five years, and a resolution recommending the creation of NIH-supported tenure positions at academic institutions. In addition, the study section worked on a proposal to recommend the establishment of special merit training grants in physiology in a few of the most noteworthy physiology departments.

During Calendar Year 1958, the Physiology Study Section held no conferences or symposia.

#### Tropical Medicine and Parasitology Study Section

During 1958, there were approximately 500 active grants in the Tropical Medicine and Parasitology Study Section. Within the same period, 176 applications were reviewed for scientific merit; of these, 127 were recommended for approval. Twelve applications of the 16 received from 10 foreign countries and territories were recommended for approval.

The influence of the Public Health Service in: (a) stimulating basic and applied research in state health departments and among young investigators in small colleges, and (b) in expanding the scope of research in academic and research institutions, was evidenced in the types of applications received. Examples of projects of a comprehensive nature include that of the Bishop Museum of Honolulu (being sponsored by PHS, NSF, ONR, and UNESCO) for the compilation of a catalog of the insects of the Pacific area. In addition to the scientific information that will be made available to specialists throughout the world, this project is basic to the control of vector-borne diseases in the Pacific. These data are vital to military forces.

With support from PHS, the Gorgas Memorial Laboratory, Panama, is undertaking two projects of major importance. The first deals with the transmission of leishmaniasis. During the initial stages of the first project, a potential reservoir host for a strain of Leishmania which is infective for human beings was found. Techniques were later perfected for rearing infected sandflies by feeding them cultures of Leishmania. The larval habitats of the sandflies were found for the first time in Central America.

The other Gorgas project deals with the ecology of sylvan yellow fever. It is an investigation of the factors which normally prevent--and occasionally permit--the passage of the virus to the areas west and north of the Panama Canal. The data obtained from this study will have direct application to problems of yellow fever now facing this hemisphere.

The need for expansion of research in disciplines of tropical medicine other than parasitology was explored. As a guide for such expansion, an evaluation of all of the research reviewed by the TMP Study Section and sponsored by the PHS was initiated. Consulting specialists accepted the task of evaluating the projects in

particular fields, e.g., schistosomiasis, bat rabies, trematodes, nematodes, arthropod vectors, malaria and Anopheles, and insecticide resistance. Completion of the evaluation of all projects reviewed by the TMP Study Section is anticipated during Fiscal Year 1959.

Planning was initiated for a 1959 special conference on bat rabies to be sponsored by the TMP Study Section. The Virology and Rickettsiology Study Section is expected to participate.

The study section's meetings were held at NIH during January and October of 1958. The meeting in April of that year was held in San Francisco, California, following project site visits in California and adjacent states. A total of 36 project site visits were made during 1958.

#### Endocrinology Study Section

Through the research grant mechanism, the Endocrinology Study Section began preparing radioactive steroids for free distribution throughout the world. This program was greatly enhanced by a gift of 460 millicuries of barium carbonate C<sup>14</sup> through the efforts of Dr. Charles L. Dunham of the Atomic Energy Commission. The preparation of these steroid compounds neared completion during the year, with distribution scheduled to begin in early 1959.

Aided by a National Heart Institute research grant, the Endocrinology Study Section held an International Work Conference on Hormones and Atherosclerosis at Brighton, Utah, on March 12-14, 1958. The papers and ensuing discussions were sent to press and the volume was scheduled for distribution and sale in January, 1959.

Through a research grant recommended by the study section, three-year support was given to a project that will prepare human urinary gonadotropins. The project was begun, and source material was obtained through the cooperation of the State of Kansas. It is anticipated that large amounts of standard material will be made available for distribution for research purposes, and for combining with materials from other countries for the purpose of establishing an international preparation.

Another research grant recommended by the study section led to the establishment of an International Work Congress on the Assay and Chemistry of Pituitary and Urinary Gonadotropins. Papers resulting from this meeting, to be held in Gatlinburg, Tennessee on December 3-5, 1959, will be published in an independent volume.

The study section continued to progress in preparing the several pituitary hormones. During 1958, a total of 143 requests for pituitary hormones and 60 requests for radioactive steroids were processed. The requests were received from biological laboratories throughout the world.

The Executive Secretary of the Endocrinology Study Section received an invitation to submit an original chapter titled, "Paradoxical Ovarian Secretions" for a book, "The Ovary." The volume is being edited by Sir Solly Zuckerman of Birmingham, England, and will be published by Academic Press in early 1959.

#### Hematology Study Section

A subcommittee of the Hematology Study Section worked out detailed plans for a Conference of Fundamental Problems and Techniques for the Study of the Kinetics of Cellular Proliferation to be held at Salt Lake City, January 19-21, 1959. With support to be provided by the National Heart Institute, the subcommittee planned to publish the conference papers in a monograph.

Among the topics to be discussed are DNA labeling techniques which are useful in assessing the span and fate of hemopoietic cells, regulation of leucocyte and platelet production, and the mechanisms that regulate the rate of red cell production.

#### Human Embryology and Development Study Section

The Human Embryology and Development Study Section sponsored jointly--with the Association for the Aid of Crippled Children, and the Collaborative Project on Cerebral Palsy and Other Neurological and Sensory Disorders of the National Institute of Neurological Diseases and Blindness--a Conference on Epidemiological Aspects of Pregnancy Wastage. The conference was held March 23-25, 1958, at Arden House, Harriman, New York.

Because of the increasing number of applications presented on research problems dealing with the use of radioactive isotopes in pregnancy, the study section became increasingly more concerned with the radiation hazard involved. Plans for holding an inter-study section conference were placed under consideration, and appropriate researchers in the field concerned were invited to express their opinions regarding the desirability of holding such a conference. The information received will be given to the study section for consideration at the first meeting during 1959.

#### Dental Study Section

At the January 1958 meeting of the Dental Study Section, the panel conceived a symposium titled, "Clinical Estimation of Caries Incidence and Increments." The symposium was held in two annual sessions beginning in September 1958. The program dates were finalized at the May 1958 meeting of the study section.

The first session was held at Ohio State University on September 4 and 5, 1958. The final session is to be held September 21-24, 1959 at the same university. The symposium is composed of approximately 55 participants. At the termination of the study



the findings will be published, probably in the form of an appendix to an established dental research journal.

Applications for grants-in-aid of dental research continued to average approximately 65 each trimester.

During the year, the study section formed several committees for the purpose of planning annual extracurricular activities. The first such activity will be an International Work Congress dealing with cleft palate and its associated phenomena. It will be held December 6-9, 1959, at the Mountain View Hotel, Gatlinburg, Tennessee. Each dental school was invited to send two observers for which partial subsidy will be available. Formal papers, together with the ensuing discussion, will be published in an independent volume. It is anticipated that five or six additional annual congresses will be held wherein all fields of dental research and education will be given minute consideration. The results of each congress will be published, each being a part of a general title concerning oral health and disease.

#### Sanitary Engineering & Occupational Health Study Section

Increased interest in environmental health research was reflected by the fact that during 1958 a total of 152 research grants supported investigations in the four major areas of interest to this study section: air pollution, food technology, water supply and water pollution, and contamination by radiation. Activity in each area exceeding that for Calendar Year 1957.

The major item of interest in the field of air pollution was the recommendation of the National Conference on Air Pollution (held during November 1958 in Washington, D. C.) that the Federal Air Pollution Control Act be extended beyond its planned expiration date of 1960. The recommendation reflected the growing national concern of industry, science, and the public on the problem of air pollution. During Fiscal Year 1958, 52 research grants were active in this field.

In food technology, 13 research grant projects were active, as opposed to four such projects during 1956. Some of the neglected areas in which research was initiated during 1958 included the effects of treating foods by radiation, the growth of certain biological agents in foods, and studies of various phases of food production in order to minimize toxicological hazards from contamination.

Eighty-four water supply and water pollution research grants were made; 75 were continuation grants, and nine were for new studies.



Three grant-supported projects in the area of environmental health contamination by radiation dealt with radioactive fallout in the Pacific Northwest, radioactivity in marine organisms and the marine environment, and radioactive accumulation limits in edible shellfish.

#### General Medicine Study Section

The General Medicine Study Section reviewed 228 applications requesting support of a broad spectrum of clinical studies in the fields of arthritis, connective tissue, diabetes, gastroenterology, cystic fibrosis, metabolism and dermatology.

The section sponsored a January 6, 1958 Conference on New Frontiers in Ulcerative Colitis, held at the Woodner Hotel in Washington, D. C. Objectives of the conference were to: (a) re-evaluate the problem of ulcerative colitis in its fundamental aspects; (b) develop new ideas and research approaches to studies of this condition; (c) stimulate the interest of younger investigators, and encourage the investigators already engaged in research on this problem, and (d) to disseminate the conference proceedings through a publication for distribution to interested investigators and physicians.

#### Pharmacology & Experimental Therapeutics Study Section

The study section sponsored a symposium on catechol amines in order to integrate current information on the rapid advances in research on catechol amines, and to clarify seemingly conflicting research findings that tend to cloud the understanding and clinical significance of these amines. The symposium was held at NIH on October 16-18, 1958, and papers were presented by 14 U.S. and six foreign scientists.

Among the findings presented was a new theory regarding the biochemical transmission of neural impulses. While the parasympathetic transmitter has been definitely identified as acetylcholine, the nature of the sympathetic transmission remains a major question. One researcher presented evidence that the substance released at sympathetic nerve endings is not epinephrine, but its precursor--norepinephrine.

#### Pathology Study Section

The Pathology Study Section sponsored two conferences: (a) a workshop conference held June 16-20 at Western Reserve Medical School for the purpose of encouraging the use of experimental pathologic techniques in undergraduate teaching of pathology; and (b) an August 21-23 seminar at the University of Wisconsin for the purpose of attracting and stimulating pathology students and those in ancillary disciplines into experimental pathology.

Jointly with the World Health Organization, the Pan American Sanitary Bureau, and the Food and Agriculture Organization of the U.S., the study section provided support for a June 1-5, 1958, International Conference on Human Nutritional Diseases at Princeton, New Jersey. The symposium was planned by a subcommittee of the study section.

Further, the section participated in a working Conference on The Responsibility of the Chairman of the Department of Pathology for Training, Research, and Hospital Practice in the Field of Nuclear Energy. The conference was held February 6 and 7, 1958 at Brookhaven National Laboratory.

#### Behavioral Sciences Study Section

The Behavioral Sciences Study Section met in four series of meetings, one of which was a September 1958 meeting held jointly with the Mental Health Study Section.

Proposals considered at the various meetings and endorsed by the study section for submission to the Council included extension of the Russian translation activities to include total translation of the "Pavlov Journal of Higher Nervous Activity," and an expansion of coverage of relevant Russian literature in the Psychological Abstracts. Further, the section endorsed the support of a Conference on Objective Tests of Personality tentatively scheduled for May 1959.

Some other areas for discussion at the meetings included: (a) the relevance of anthropological training to mental health research, and the insufficiency of ordinary fellowships and training funds for financing the necessary anthropological training, and (b) consideration of the Bayne-Jones report proposals for "program grants" and "base grants."

#### Mental Health Study Section

At its first meeting of Calendar Year 1958, the Mental Health Study Section expressed considerable interest in securing translations of Russian literature dealing with the behavioral sciences. Later, it formally endorsed a statement on "Need for, and Translation of, Russian Scientific Literature" prepared by the Behavioral Sciences Study Section with respect to: (a) translation of the Pavlov Journal of Higher Nervous Activity, and (b) possible expansion of Psychological Abstracts to include more comprehensive coverage of Soviet literature.

#### Biochemistry Study Section

The rapidly increasing volume of research grant applications received in the Biochemistry Study Section reached the point where the quality of review of such application was jeopardized.

As a result, a new panel--Physiological Chemistry Study Section--was formed, composed in part of incumbent members of the original study section. Both panels were then brought up to operational strength through the appointment of new members, and were scheduled to meet separately during January 1959.

Although in a major degree the two panels image one another in scientific qualifications and competence, the Biochemistry Study Section is responsible for evaluation of the projects oriented toward organic chemistry, while the Physiological Chemistry panel is identified with the biochemistry proposals that embrace elements of clinical biochemistry.

The Biochemistry Study Section continued its interest in the activities of the Committee on Biological Chemistry of the National Research Council. The committee's program includes developing criteria, specifying physical characteristics, and recommending methods of analysis for the guidance of laboratory users of commercially available biochemicals.

During 1958, the study section was concerned with studying the many problems involved in the recruitment of graduate students. General discussions pointed to the need for development of stimuli--at pre-university levels--that would hopefully result in motivation of greater numbers of candidates for advanced degrees in biochemistry; and, better preparation in the physical sciences--at the undergraduate level--of those motivated to seek postgraduate training in anticipation of careers in research and teaching.

The study section was fully aware of programs initiated and planned by the National Science Foundation, the American Institute of Biological Scientists, and other organizations to replenish and increase the scientific manpower pools for fundamental research in the future. It was, nevertheless, concerned with the specific measures that will assure appropriate training of future investigators in the life sciences, particularly in biochemistry. The study section believes that one area of opportunity, in particular, is being neglected by the programs extant for strengthening our future potential in this discipline. Namely, most of the departments of chemistry and biology in the smaller liberal arts colleges provide little or no teaching of the fundamentals of biochemistry, and do not bring to the undergraduate an understanding of biochemistry and related life science disciplines as areas of career research and intellectual opportunity.

After discussion of all aspects of the problem, the study section directed that a subcommittee develop recommendations for constructive and workable measures designed to provide or enhance the motivation of undergraduates to seek and enter careers of research in the life sciences. The subcommittee will present its recommendations in the spring of 1959.

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